

## Appendix Item 1 – Server Code

The “server side” software receives XML data from the graphical control panel and transforms the data into a format that can be sent to and accepted by the Transmitter.

The XML of the CONTROL structure looks like this:

```
<?xml version="1.0"?>
<!DOCTYPE control [
    <!ELEMENT device (channel, level)>
    <!ELEMENT channel (#PCDATA) >
    <!ELEMENT level (#PCDATA) >
]>
```

Where channel is the device to control (0 to N) and level is the state (0 for off, etc.)

EXAMPLE:

```
<control>
    <device>
        <channel>0</channel>
        <level>4</level>
    </device>
</control>
```

The XML of the HEADER structure looks like this:

```
<?xml version="1.0"?>
<!DOCTYPE header [
    <!ELEMENT user (ID)>
    <!ELEMENT ID (#PCDATA) >
]>
```

EXAMPLE:

```
<header>
    <user>
        <ID>123456789</ID>
    </user>
</header>
```

As many elements as needed may be added to this header to further identify the user.

The Basic logic of the server is as follows:

Begin Program;

{

    Initialize TCP/IP (use any available port);

    Initialize USB IO (for communication with our digital IO board);

    LOOP Waiting for incoming connections;

    {

        Process connection;

        Read HEADER\* from new connection;

        Extract User ID ;

        IF valid user ID then begin message loop

            While valid connection

            {

                Receive message and decode it;

                Verify decoded message;

                Write valid code to USB; Discard invalid message;

            }

        ELSE break connection;

    }

}

End Program;